



## The Danube Script and Other Ancient Writing Systems: A Typology of Distinctive Features

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The ideological wall constructed to divide prehistory and history, the primitive and the civilised, and writing and pre-writing would fall overnight were the Old European script to be indisputably vindicated. It would herald nothing less than the collapse of the present notion of civilisation (Rudgley 1999: 71).

### 1. Introduction

Among the innovative technologies which emerged in Southeastern Europe in the course of the sixth millennium BCE, writing occupies a prominent role. The experiment with writing technology in that part of Europe produced an original script which is firmly rooted in the local tradition of an earlier use of signs and symbols, drawing on the cultural heritage of the Mesolithic Age and partly going back as far as the Palaeolithic. This ancient script is called here the “Danube script” and the cultural horizon in which it originated, the “Danube civilization” (see Haarmann 2002a: 17 ff. for this terminological innovation). The terms “Old European script,” for the tradition of writing technology, and “Old Europe,” as a characterization of the cultural horizon, are synonyms (see Gimbutas 1991 for this older terminology).

This terminology associates itself with two traditions of scientific research which focus on the Neolithic and Chalcolithic periods in Southeastern Europe. V. Gordon Childe coined the term “Danube civilization” in the 1920s,

referring to the cultural horizon of settlements in the Danube valley. The Danube River is the waterway connecting all the regions of the Balkans. During the Neolithic, major settlements in the valley served as irradiating centers from which cultural impulses spread into the hinterland. Childe (1925, 1929) was not concerned with the differentiation of culture and civilization (in the sense of high culture) because he was not aware of the existence of a script as a marker of high culture. His terminology is continued here because of its focus on the Danube, the backbone of trade relations in the wider region.

The other tradition is the one identified by Marija Gimbutas (1974, 1989, 1991, 1999) who elaborated her sophisticated mosaic of “Old Europe,” highlighting the ensemble of pre-Indo-European cultures in the Balkans. Gimbutas deserves the credit for broadly documenting the richness of Old European cultural traditions, which included writing as one of its prominent assets. On the basis of Gimbutas’ documentation and more than a century of rich archaeological discoveries, it becomes clear that a high culture of an agrarian civilization flourished in Southeastern Europe from the sixth to the fourth millennia BCE. Old European societies developed advanced institutions and technologies and cultivated a sophisticated worldview that was imbued with respect for the life cycle, for the annual regeneration of nature,

and a veneration of the ancestors and their achievements.

In a wider perspective, the terminology focusing on the key name “Danube” facilitates an interdisciplinary discussion about the history of writing and about issues relating to ancient writing systems, in particular. There is a general consensus among scholars that the emergence of early scripts is associated with cultural evolution in the valleys of big rivers or in adjacent areas. This is true for civilizations in Mesopotamia, Egypt, in the Indus valley, in China as well as in southeastern Europe. Once issues of early writing in the Danube civilization are introduced into the interdisciplinary discussion by making terminological reference to the river itself, scholars from other disciplines (Mesopotamian studies, Egyptology, etc.) may readily recognize the congruence of this pattern with the one studied in their own field and, in the long run, this may serve as an incentive to promote interdisciplinary cooperation and comparative research on pertinent issues.

## 2. The Early Experiment with Writing in Southeastern Europe

The existence of a script in Southeastern Europe from the sixth to the fourth millennia BCE (and beyond until the third millennium BCE in Ukraine) can be confirmed in a two-fold way:

a. By applying a method of exclusive (negative) identification, that is, highlighting features of sign use that do not fit the definition of other patterns such as decoration (ornaments and symmetrically aligned motifs), religious and/or magical symbolism, potters’ marks, etc. Such an approach is a form of identification based on circumstantial evidence.

b. By applying a comparative method, that is, identifying properties which the sign system of the Danube civilization shares with other ancient writing systems (see parameters under 4. and 5.). A comparative analysis

provides ingredients of a positive identification as a script.

This contribution focuses on the application of both methods, with particular emphasis on the comparative method, contrasting principles of writing with distinctive features of ancient writing systems. The Danube script is compared with the ancient Sumerian pictography (of the archaic period between c. 3200 and 2700 BCE), the Proto-Elamite script (c. 3050-2700 BCE), early Egyptian hieroglyphs (c. 3350-2600 BCE), Cretan Linear A (c. 2500-1450 BCE), the ancient Indus script (c. 2600-1800 BCE), and ancient Chinese writing of the late Shang and western Chou dynasties (oracle bone inscriptions c.1200-780 BCE). Parallelisms and resemblances are elaborated in a comprehensive typological scheme.

A script can be identified in terms of an operational technology even without being deciphered. The history of research on writing knows several prominent cases of scripts which were acknowledged to be writing systems prior to their decipherment (see Pope 1975 for a history of decipherment). This holds true for the ancient Aegean scripts, for Linear A and Linear B, in particular. The decipherment of the oldest of the linear scripts, Linear A, which the Minoans elaborated around the middle of the third millennium BCE, is not yet complete. There is still uncertainty about the phonetic value of many syllabic signs. And yet, the nature of the signs of Linear A as signs of writing has not been disputed.

A classical case is Linear B (Chadwick 1992). Alice Kober laid the groundwork with her distributional analysis of signs and sign groups. On the basis of her findings, Michael Ventris succeeded in identifying Linear B as the script in which Mycenaean Greek was written. Ventris publicized his insights in a presentation on BBC radio in June of 1952. John Chadwick, who had listened to Ventris’ presentation, offered his cooperation and, together, they elaborated an

article, explaining the principles of decipherment (Ventris and Chadwick 1953). Before its decipherment, scholars had speculated for many decades about the language that might have been written in that script, but there had been a general consensus that it represents writing.

Similarly, the ancient Indus script is generally acknowledged to be a form of writing, although its decipherment has not yet experienced a decisive breakthrough, despite initial progress (Parpola 1994). Some scholars have remained reserved about the nature of the Indus signs (e.g., Maisels 1999: 343). Recently, claims have been made by an outsider in the field of research on the history of writing that the Indus signs are not writing because the inscriptions are mostly short (Lawler 2004). This is an interesting case of an undeciphered script that attracts dilettants who confound the organizational principles of a given writing system with the social functions of text production in that script. Apparently, there were certain social restrictions in the ancient Indus society that delimited the use of the script to short messages.

As another example, the case of the Mayan script illustrates that, on the foundation of a general agreement on its status and function as a script, a wide array of unconvincing approaches to its decipherment had been made before Michael Coe (1992) succeeded in giving a conclusive assessment of the writing principle as logographic with a syllabic component.

I am aware that the term “Danube script,” as it is used here, suggests a kind of unity of literacy that lacks documentary evidence. It may well be that, behind the veil of a unitarian “Danube script,” several regional traditions in Southeastern Europe are hidden. Owens (1999) prefers to speak about the cultural institution of writing in the plural (i.e., “Balkan scripts”). Further investigation is needed to clarify the interconnection of sign use in different cultural

areas, even reaching beyond the narrow limits of the Danube region. According to my own provisional assessment, there were at least three gravitations of writing: the Vinča culture in Serbia (and parts of Bulgaria and Romania), the Karanovo cultural area in Bulgaria, and the Cucuteni-Tripillya complex between the Carpathians and the Dnieper.

When one inspects the range of signs and symbols found in the archaeological record of Southeastern Europe, the high degree of abstractness of motifs and forms becomes apparent. The sense of abstractness seems to be among the features that was inherited from a period that preceded the emergence of writing (that is, prior to c. 5300 BCE), and this is true for Lepenski Vir (Borić 1999). According to Kozłowski (1992: 20), this Mesolithic culture may ultimately be based on Paleolithic foundations laid by migrants from Central Europe who occupied camp sites in the Danube valley between about 29,000 and 27,000 BP.

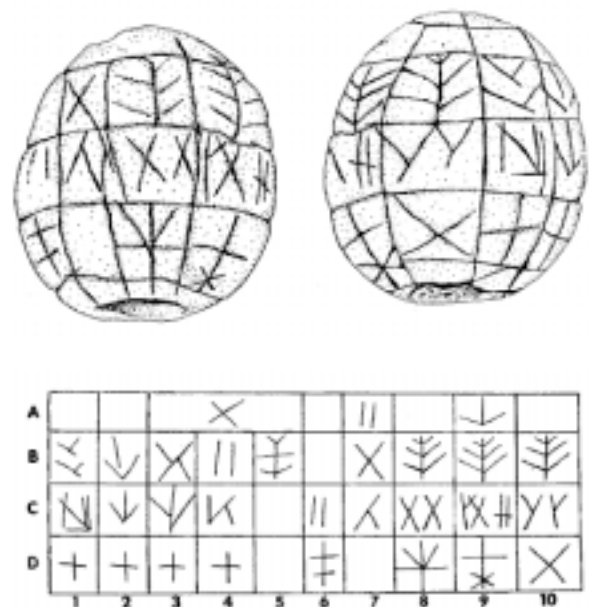


Figure 1: A spherical stone from Lepenski Vir with incised signs (after Winn 1981).

On the continuum of cultural evolution, the complex of Lepenski Vir (Srejšović 1969; Ivić 2000)—end of the eighth to the early sixth millennia BCE—is the immediate predecessor of the Neolithic Vinča tradition (see Brukner 2002 for an outline). In the visual heritage of Lepenski Vir, one finds basic abstract forms. Most illustrative is the assemblage of signs on a spherical stone (Figure 1). Such abstract motifs repeat themselves, with a delay of several hundred years, in the inventory of Vinča signs.

While writing may not have originated in the region around Vinča, the eponymous site (south of Belgrade) was pivotal in connecting trade routes along the Danube and its tributaries and the Vinča cultural complex played a significant role in the spread of literacy.

The Vinča culture was certainly the most developed, the longest lasting and territorially the largest culture in the Balkans and Southeastern Europe. A whole series of regional groups in the area are genetically and culturally linked to it: Karanovo II - IV in Thrace, Paradimi on the northern Aegean shore, probably a part of the Cretan Neolithic, the Larissa group in Thessaly, Bolintineanu in Muntenia, Didesti in Muntenia and Oltenia, Vadastra I in Oltenia, Szakalhat in the Hungarian Tisza basin (Garašanin 1998: 65).

When comparing the ancient sign systems and their fabric one recognizes that human inventiveness produced similar strategies and techniques in different parts of the world at different times. Of these experiments, the Danube script is the oldest as yet known (Haarmann 2003b, 2007: 116 for an overview of ancient writing systems). The semiotic activity relating to the use of signs and symbols in the cultural centers of Southeastern Europe was a pristine development since it was not instigated or imported from outside. With respect to its overall fabric, the Danube script is original and unique. Its uniqueness articulates itself in its organizational principles, in the composition of

its sign inventory, in the structural features of sign forms, in the ways objects were inscribed, and in the social functions which writing had in the ancient Danube society. What makes the fabric of the Danube script unique lies in the specific combination of pertinent features which are of original European coinage.

The uniqueness of the Danube script is not contradicted by stating that the basic components that characterize sign use in Southeastern Europe are also found in other ancient civilizations of the Old World, with the significant difference that such constructive components are distinctively assembled in each system. Individual features of the Danube script may find their parallels in other writing systems of the Old World but there is no other ancient writing system which resembles the Danube script regarding its overall fabric.

The importance of research on the early experiment with writing in Southeastern Europe can hardly be overestimated. In his assessment of the high level of technological development in the Stone Age, Rudgley gives the following evaluation:

If the Old European script is a highly developed form of writing—and Gimbutas and Haarmann have presented a credible case for it being so—its very antiquity makes it a book that seems to be destined to remain firmly shut. . . . The notion of an Old European script goes against many of the entrenched positions of archaeology and the traditional view of the development of civilisation. The implications are immense (Rudgley 1999: 70 f.).

### **3. Sign Systems, Notational Systems and the Status of Writing in the Realm of Culture**

Writing is among the pertinent properties of what we call civilization. All advanced societies, ancient or modern, possess writing technology. This truism has been repeatedly reaffirmed throughout the long history of studies



abbreviations, in capital letters, for substances which are derived from Latin and Greek names. The configuration of substances is expressed by graphic (non-language) related means.

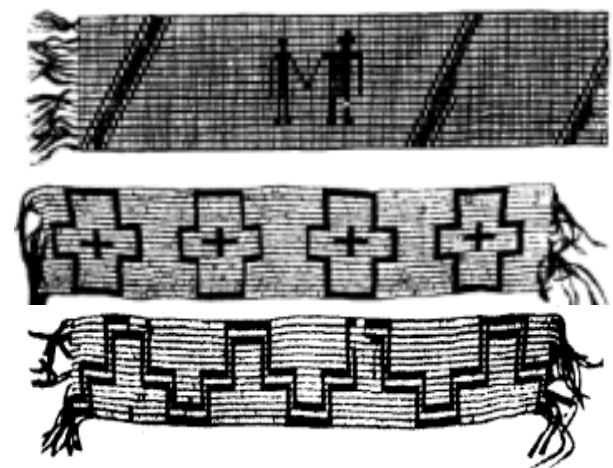
In Figure 2, writing technology is assigned a position in both sections of communication systems. This means that, in certain cultural environments, writing may be either completely or predominantly unrelated to language or it may be strictly language-oriented. In the oldest stage of its development, writing in ancient China was ideographic and unrelated to the sounds of the Chinese language. Alphabetic writing, as we know it from our society, is based on the principle of a “one sound - one sign” equivalence.

Any discussion about the role of writing and other sign systems in a given culture has to start from definitional approaches to the concept “writing.” It is easy to distinguish between writing and non-writing in contexts where one finds manifestations of both. As an example, I introduce here two versions of a contract that was concluded, in 1682, between William Penn and the Delaware Indians about the purchase of land in the region that was later named Pennsylvania after its founder (Figure 3a).

The version of the Europeans who wanted to settle in North America is a text in English and in alphabetic writing. Greatly contrasting with this is the version of the Indians which is comprised of three so-called *wampum belts* (Schaaf 1990: 2 f.). The motifs in these belts are not mere decoration; they convey information, albeit in a diffuse way, and significantly different from writing. The human figures in the first belt depict the parties that concluded the contract: the white man (with a hat) and the Indian in a friendly gesture (holding each other’s hand). In the second belt, the geometrical motifs signify mountains and, in the third, rivers are depicted representing the land that is being sold (Figure 3b).



**Figure 3a:** William Penn’s contract with the Delaware Indians about the purchase of land in Pennsylvania, 1682 (after Haarmann 1992).



**Figure 3b:** *Wampum belts* depicting the sale of land in Pennsylvania by the Delaware Indians to William Penn in 1682 (after Haarmann 1992).

In other contexts, it is much more difficult to specify the nature of certain techniques with



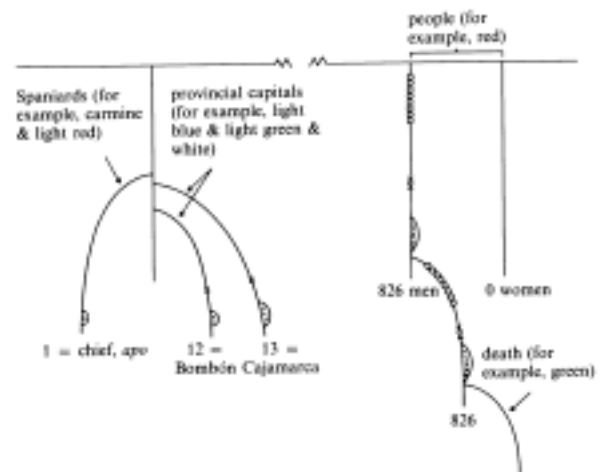
which information is conveyed. For instance, do the Inca *kipu* (*quipu*) represent writing or non-writing (Figure 4a)? Recent research has shown that the capacity for storing information in the arrangements of strings was much greater than was earlier believed. In fact, the Inca *kipu* functioned as a highly effective device. Its principles of storing information were based on ways the main and side strings were arranged, and how knots and twisting techniques were applied, combined with different colors (see the encoding/decoding of a message in Figure 4b). The use of different combinations of colors and twisting techniques made it possible to represent hundreds or even thousands of different categories, such as domesticated animals, cultivated plants, and wild animals (Pärssinen 1992: 37). In the context of the pre-Columbian culture of the Andes, messages conveyed by means of *kipu* were usually accompanied by the verbal explanations of the messenger.



**Figure 4a:** The notational system of the Inca kipu.

This, however, would not be a reason to exclude the *kipu* technology from the definition of what writing is since many written texts need explanations given in the form of speech to

clarify their contents. And yet, the *kipu* do not meet a basic requirement by which any form of writing distinguishes itself clearly from other sign systems, and this is the one to one correspondence between sign and concept (see section 4). Although the *kipu* technology comes very close to the demands of writing, the configurations of knots, colors and string arrangements remain diffuse in their relationship to the information they convey. The cognitive space that is left for the decoder of a message to interpret the interrelation among the visually marked concepts is too wide for meeting the requirements of writing.



**Figure 4b:** Decoding a *kipu* message : “When the marqués went to Bombón [from Cajamarca] we gave him 826 men [and no women] and all of them were lost during the expedition” (after Pärssinen 1992).

#### 4. Ancient Scripts and their Principles of Writing

When asking people in modern Western society what is the essence of writing, most, if not all, will say that writing means rendering words with letters of the alphabet. From the standpoint of the history of writing, the alphabet is the most specialized of all writing systems that have ever been created in the course of about seven millennia of cultural history. Alphabetic writing is oriented on the sound structure of the written

Written equivalent	Sign components	Sound structure	Conceptual basis
愛	<p>                     𠂇 (a giving hand) → 爰                      一 (things) → 爰                      心 (heart) → 爰                      爰 (person) → 爰                      爰 + 心 → 愛                 </p>	ai	love
慈	<p>                     心 (affection of mother to child) → 慈                      兹 (hang about) → 慈                 </p>	ji	affection
德	<p>                     彳 (contraction of 行 (act)) → 徳                      直 (variation of 直 (honesty)) → 徳                      心 (heart) → 德                 </p>	toku	virtue, goodness good power to command respect
忠	<p>                     中 (middle) (fair)                      心 (heart)                 </p>	chū	loyalty, devotion, fidelity, faithfulness
念	<p>                     今 (now) → (concentrating oneself to a thing now)                      心 (heart) → (praying heart and soul)                 </p>	nen	feeling desire concern, attention, care

Figure 5: The visual etymology of some Chinese characters (after Haarmann 1990).

language and, specifically, on the distinction of individual sounds which are rendered with single letters (Healey 1990). This kind of writing is called *phonographic*.

There are other types of phonographic writing. Most widely spread in antiquity was syllabic writing in which one sign corresponds to a syllable. Akkadian, Babylonian, Hittite and other cuneiform systems are syllabic (Walker 1990; Cooper 1996), as is Cretan Linear A (Bennett 1996: 132 ff.). Another kind of phonographic writing is represented by the Egyptian hieroglyphs (Ritner 1996) where a sign renders the consonantal segments of a word. There are signs for writing one segment, two segments, three segments and even a four-segment sequence (Petrovskij 1978). The picture of the famous *scarabaeus*, the beetle that rolls dung balls, features the inventory of three-segment signs and reads *h-p-r*.

There is, however, much more to writing than its mere phonographic expression. This can also be revealed in a test, namely when asking people in China or Japan what is writing. Their answer will deviate significantly from statements of westerners. In the cultural tradition of East Asia, literacy is associated with the experience of non-phonetic writing. Writing with Chinese characters is based on a principle that is, in its essence, only indirectly related to the sound structure of the Chinese language.

This principle of writing is called *logographic* or *ideographic* which, practically speaking, corresponds to one-word (= whole-word) writing. Logographic refers here to the rendering in writing of concepts that are products of abstract reasoning (e.g., generous, friendship, self-consciousness) whereas ideographic makes reference to ideas which can be depicted (e.g., house, dog, pot).



In Chinese writing, many abstract ideas are rendered by composite signs that are comprised of miniature components in a figurative ensemble (Figure 5).

In the historical retrospective, one can make the surprising observation that none of the early writing systems that emerged in the civilizations of the Old World started out as a phonographic system. Regardless of how the writing systems of antiquity associated themselves, writing started out as non-phonetic. In the course of time, more and more writing systems became associated with the sound structures of the languages which were rendered by their signs.

The process by which the early writing systems of the world emerged shows a similar pattern in each of the cultural environments. In early writing, the sound sequences of spoken words were neglected in favor of the message being rendered with signs. The priority of using signs for writing lies with an orientation to the *meaning* of words (not their sounds) and to the distinction between concrete ideas and abstract concepts.

### **Human intentionality as an arbitrator of logographic and phonographic writing**

Writing activity is the manifestation of human intentionality. There is no writing without the intention to attain certain ends. Most scholars would agree that writing basically serves the purpose of fixing information for reuse with the help of visual markers (for additional purposes, see under “Aesthetic functions of sign use”). Intentionality has a multifaceted role in this activity because it relates both to the content of a message as well as to the way in which it is rendered. “Intentionality covers those characteristics of mental activities . . . that contain information about something beyond the content and the activity” involving a particular attitude towards that content (Lyons 1995: 1).

In the formative stage of the ancient scripts, the intentionality of writing is associated with the realm of ideas, rather than with the sounds of the language in which ideas were expressed. The intentions of those who created writing systems did not primarily lie in the exact rendering of speech sounds but in the fixation of ideas and information of which messages were composed. This intentional fixation of information for reuse bears all the characteristics of what we understand as writing, regardless of the missing connection with language. The contents of the ancient Sumerian accounting tablets, can be understood and reconstructed without knowing any word of Sumerian, for the simple reason that the signs of the ancient Sumerian script are *pictographic*, that is, they render ideas as products of the mind, not words as products of speech.

When correlating the intentionality of fixing information for reuse—with the realm of ideas, on the one hand, and language, on the other—one arrives at the following basic formulas:

#### **A) The realm of ideas <==> writing /// language (sound structure)**

In this pattern, an idea is visually associated with a sign of writing via its representational form (that may be identified with a certain object) or—in the case of an abstract sign—via its conventional use. For example, the concept “woman” in Egyptian hieroglyphs is visually evoked by a graph depicting a sitting female; while in Sumerian writing, the concept “divinity” is evoked by the convention of using a star.

This is the pattern of intentionality which governs the formative process of ancient writing systems. Evidence for this is provided by the early stages of Sumerian pictography (Green and Nissen 1987), Proto-Elamite script (Englund 1996), ancient Egyptian hieroglyphs of the pre-dynastic period (Dreyer 1998),

ancient Indus script (Parpola 1996), and ancient Chinese oracle bone inscriptions (Keightley 1978). The same holds true for the Danube script (Haarmann 1995: 31 ff.). Although this writing system has not yet been deciphered, its organizational infrastructure, which can be identified, speaks in favor of the pattern described here.

### **B) The realm of ideas <—> writing <==> language (sound structure)**

In this pattern, the idea (or concept) is only indirectly, via its conventional meaning, associated with the graphic sequence that renders the sound structure of a word. The meaning of words like *dom* or *talo* (as rendered in alphabetic writing) is not recognizable in the graphic appearance of their sound structure because the sound structure of elements of speech is arbitrary in its relation to meaning. The meaning reveals itself only to those who share the conventions of the given speech communities whose members use those words. For instance, *dom* requires the knowledge of Russian language use, while *talo* is assigned its conventional meaning in the Finnish speech community. Both *dom* and *talo* have the same meaning, which is ‘house’.

This pattern of intentionality is typical of all phonographic writing systems, syllabic (as in Assyrian, Babylonian or Hittite cuneiform writing), segmental (as in Egyptian hieroglyphics of the dynastic period) or alphabetic. In a historical retrospective, this pattern of intentionality, with the sound structure of a given language in focus, is a secondary development of writing systems.

Most modern definitions of writing are associated with the pattern of intentionality identified as (B). Writing of this kind is sometimes called “true writing” (DeFrancis 1989), which is an awkward term since its opposite would be “false writing.” Definitions

along the lines of “true writing” are exclusive and neglect the pattern of intentionality identified as (A). This negligence is also characteristic for the theoretical discussion in the Russian tradition of writing research (Zinder 1987). The exclusive orientation toward phonographic writing becomes apparent in definitions of writing which explicitly “exclude from the category of writing systems those graphic expressions that do not reflect the sounds of the language” (Daniels 1996: 8). However, the eclipse of earlier forms of writing is problematic since the emergence of the pattern (B) is inconceivable without the prior stage (A). Consequently, only when taking into consideration the duality of stages in the development of writing technology can one perceive the gradual unfolding of the process of phoneticization and gain insight about “the fact that relatively early scripts tend to be logographic rather than phonographic” (Sampson 1985: 36).

In certain cultural environments, one can observe a floating between the principles (A) and (B) in the history of local literacy. Sumerian writing illustrates this state of a diffuse intentionality. In the early phase of Sumerian literacy (c. 3200–c. 2900 BCE), there was no explicit intention to render Sumerian words according to their sound structure and grammatical elements were omitted in writing.

Sumerian is an agglutinative language in which nouns take suffixes and verbs both prefixes and suffixes. Virtually no trace of these affixes can be found in the early archaic texts, but they begin appearing after 2900 B.C.E. Curiously, they are used in what can only be described as a skeletal way for centuries; and only in the early second millennium, when Sumerian was probably extinct and spoken only in the schools, are the affixes fully expressed (Cooper 1996: 43).

Still, after the introduction of the cuneiform technology of writing (c. 2700 BCE), Sumerian scribes wrote according to the “catchword principle,” writing the key words of a sentence

and often neglecting grammatical elements and syntactic markers.

The Sumerian writing never attempted to render the language phonetically correct, exactly as it was spoken (Thomsen 1984: 20).

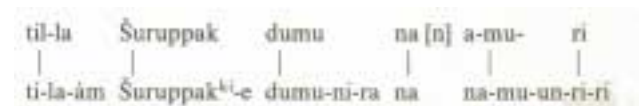
The later history of writing in Mesopotamia is the history of a gradual process of reconciling sign sequences with the sound sequences of Sumerian. Throughout the period of Sumerian literacy, writing was never predominantly phonographic. On the contrary, the use of logographic signs abounds. This, differing according to individual texts and text genres, constitutes up to 60 percent of the total amount of signs. Signs with phonetic (= syllabic) value make up minimally 36 percent of written texts (after Civil 1973: 26).

<u>Sign types</u>	<u>Sumerian texts</u>	<u>Akkadian texts</u>
Logograms	60.3% - 42.8%	6.5% - 3.5%
Syllabic signs	36.4% - 54.3%	85.6% - 95.7%
Determinatives <sup>1</sup>	3.1% - 2.9%	7.6% - 0.7%

In Sumerian literature, there is a particular genre of texts, the so-called “instructions.” These texts have a stereotyping phrase structure and their formulaic contents was reproduced, more or less unchanged, for hundreds of years, being transferred from one generation to the next as sources of proper conduct in Sumerian society. One of these texts contains the instructions given by Šuruppak to his son (Alster 1974) (Figure 6).

<sup>1</sup> Graphic determinatives are elements which are written but not spoken. They precede a word and their function is to identify this word as belonging to a certain class of words. For example, in Sumerian writing, the stylized picture of a star served as a determinative. In association with a name, it specified that name as one of a divinity.

When comparing an archaic version of the text (c. 2600 BCE) with the Old Babylonian version (c. 1850 BCE) one recognizes that, in the early version, the writing concentrates on catchwords and omits, for the greatest part, the writing of syntactic markers. In the younger text, the rendering of words and syntactic markers with signs of writing is much more extensive.



Translation: “[On that day Šuruppak], the wise one, the one knowing [elaborate] words, who lives in Sumer, Šuruppak gave instructions to [his] son.”

**Figure 6:** Section of a formulaic Sumerian text, “Instructions by Šuruppak for his son” (after Thomsen 1984). (Top): Archaic text from Abu Salabikh, c. 2600 BCE; (Bottom): Old Babylonian text, c. 1850 BCE.

For many hundreds of years, Sumerian scribes rendered the sound structure of their mother tongue only selectively in writing. It was not until the adoption of cuneiform writing by the Akkadians (c. 2500 BCE) that the decisive step toward a full-scale phonographization was taken. Akkadian cuneiform writing makes use of signs which are predominantly phonographic (see comparative data in the above table).

The writing system thus changed from chiefly logographic to chiefly syllabic, with a trend towards consistent spelling. In the early first millennium BC, an Assyrian scribe could manage fairly well with just 120 graphemes (Parpola 1994: 35).

### Writing with and without language

When extending the narrow definition of what writing (as “true writing”) is, to encompass the broader perspective of the patterns (A) and (B), one is confronted with the question of what the boundaries are between writing and non-writing.

If pictography is an ancient form of writing (e.g., as used in the oldest Sumerian accounting tablets or on Chinese oracle bones), how does it differ from picture sequences in a pictorial narrative (e.g., as in Palaeolithic and Neolithic rock carvings around the world)? There is a





clear distinctive feature which separates pictography from a pictorial narrative. Any form of writing, regardless of being logographic (ideographic) or phonographic, functions according to the principle of a “one-to-one” equivalence.

### A typology of writing systems

Applied principle or technique	The association of pictures with narrative sequences	The association of writing techniques with ideas and/or sounds	
	Clusters of ideas	Single ideas or concepts	
	(Relation to a whole utterance)	(Relation to the conceptual basis)	(Relation to the sound structure)
Pictorial	Picture representing a sequence of ideas	—	—
1. Pictographic	—	Picture representing an individual idea	—
2. Ideographic	—	Iconic sign symbolizing an individual concept	—
3. Logographic	—	Abstract symbol as an equivalent for an individual concept	—
4. Syllabic	—	—	Conventional sign as an equivalent for a syllable
5. Alphabetic	—	—	Conventional sign as an equivalent for a single sound

**Figure 7a:** A typology of writing systems. Principles and techniques of writing.

Selected examples illustrating the individual techniques for the fixation of ideas

Applied principle or technique	Visual means of representation	Explanations
Pictorial		<p>Cultural context: Symbol from the Walam Olum, the tribal chronicle of the Delaware, recorded in the <i>kekinawin</i> technique of pictorial literacy</p> <p>Reading: <i>Manitodasin makol witcemap "pa!pa!" payat payat wemitcemap</i></p> <p>Translation: "The moon woman saved the people and took them into her boat"</p>
Pictographic	 (picture of a stone)	<p>Cultural context: Symbol from the inventory of Aztec glyphs</p> <p>Reading: <i>tetl</i></p> <p>Meaning: "stone"</p>
Ideographic	 (a foot, water flowing from a jug)	<p>Cultural context: Egyptian hieroglyphs</p> <p>Reading: <i>w<sup>f</sup>b</i></p> <p>Meaning: "pure"</p>
Logographic	&	<p>Cultural context: European tradition of literacy</p> <p>Reading: <i>and</i> (English), <i>und</i> (German), <i>et</i> (French)</p> <p>Meaning: "and"</p>
Syllabic		<p>Cultural context: Symbol from the Japanese syllabary hiragana</p> <p>Syllabic value: <i>mi</i></p>

7b: A typology of writing systems. The application of techniques.

*The formula for pictography is:*  
 ONE PICTURE (iconic sign in a writing system) as the representation of ONE IDEA or CONCEPT.

*The formula for syllabic writing is:*  
 ONE SIGN (iconic as in Mycenaean Linear B or non-iconic as in cuneiform writing) as an equivalent for ONE SYLLABLE of a given language.

*The formula for alphabetic writing is:*  
 ONE ABSTRACT LETTER (non-iconic sign in a writing system) representing ONE SOUND of a given language.

Pictorial narratives lack this rigid one-to-one equivalence. Individual pictures may stand for a whole sequence of ideas. In the typological overview of the different stages in the

development of writing systems, the difference between pictorial techniques and writing (pictography, for one) becomes apparent. In Figure 7a, the cognitive fabric of writing is highlighted by the features in the central and right columns while, in the left column, the relation between a pictorial sign and ideas remains diffuse, that is, undifferentiated. The diffuse nature of pictures and their meaning in pictorial narratives can be elucidated when contrasting them with signs of writing (see examples in bottom section of Figure 7b). It becomes clear from the different stages of writing that the establishment of the alphabetic principle (one sign as an equivalent for one sound) is the most advanced and specialized of all techniques.

**Cultural relativity as an arbitrator in the composition of sign inventories of ancient scripts**

The sign inventories of ancient scripts are composed of many elements which depict natural objects, living creatures, plants and animals, parts of the natural surroundings such as rivers or mountains, celestial bodies such as the sun, the moon and stars, items of the local material culture such as tools or pots, evidence of human presence in the environment such as houses or settlements, etc.

At a superficial glance, many pictures of items that are well-known to everyone may look similar when comparing various sign systems. It would be misleading, however, to draw the conclusion that the creators of signs would have been inspired by a “universal” figurative sense. This is not the case.

A closer inspection of the iconic material in a comparative view reveals the working of a fundamental principle, that of *cultural relativity*. In their intention to select a set of signs for making a script operational, the creators of ancient writing systems were inspired by a

cognitive mechanism which was culture-oriented. The relativity of how to produce pictures of universally known items in any cultural environment becomes evident when comparing the signs that were used, in different writing systems, for rendering general concepts such as “woman” and “man” (Figure 8).

a) Ideographic writing for Woman		
Script	Ideographic symbol	Explanations
Sumerian		shape of a vulva
Egyptian		sitting woman
Linear B		standing woman in a gown
Chinese		
Old European		

b) Ideographic writing for Man		
Script	Ideographic symbol	Explanations
Sumerian		shape of a penis
Egyptian		sitting man
Linear B		trunk of a man's body with legs
Chinese		
Old European		

**Figure 8:** Writing the basic concepts (a) “woman” and (b) “man” in ancient scripts (after Haarmann 1998, with additions).

In fact, there is no universal convention of how to render these basic concepts in writing. The Sumerian sense of abstractness responded to the demand of creating signs for woman and man in a radical way. According to the *pars-pro-toto* principle, the most typical difference between the sexes was taken as a base of orientation. The concept “woman” was rendered by the picture of a vulva, “man” by a stylized penis. In the



sphere of Egyptian culture, the representatives of the two sexes were depicted in a sitting position (woman) in contrast to a walking human being (man).

The ancient Chinese had a very particular way of writing the two concepts in question. According to the Chinese view, the characteristics of the woman were reduced to the essentials of her waist and legs, with the upper body only retained as a short stroke. The sign for man is quite exceptional and clearly reflects Chinese mentality that was inspired by the heritage of the early agrarian society in East Asia. The sign for man is composed of two basic elements, a stylized pair of legs and the shape of a rice-field. The essence of a man in Chinese thinking is his value as a member of the workforce in rice-production.

Each of the ancient writing systems shows conventions of depiction which are locally specific and depend on local cultural traditions. What has been illustrated here for the conceptual pair “woman” : “man” is true also for hundreds of other items. Although the Danube script has remained so far undeciphered, the working of cultural relativity has to be reasonably assumed also for the composition of its sign inventory. The signs of the Danube script, which are added here to extend the comparison of signs rendering the duality of the sexes, can only be putatively associated. In this pair of signs, specific features of a pictographic duality become apparent which are unique to the cultural environment of the Danube civilization and unknown elsewhere.

## 5. Parameters for Comparing Ancient Writing Systems: A Typological Outline

The following typological outline of pertinent features of the Danube script is based on the selection of basic parameters which are valid for all the compared ancient writing systems.

### Geo-cultural centrality

All ancient civilizations show certain patterns of how literacy is spread in the area of their radiance. There are two different patterns that are mutually exclusive and each pattern gives the use of writing a specific geo-cultural profile. Both patterns are found in the ancient civilizations of the Old World.

Literacy may be spread as a result of urban agglomerations that function as cultural centers. This is the case with the use of the pictographic script in the ancient Sumerian city states (Crawford 1991: 48 ff.). The use of writing for the purpose of divination in ancient China was centered on the capital of the late Shang dynasty which was Yin in the present region of Anyang (Chang 1983: 25 ff.).

The conditions of the use of writing and of the spread of literacy were fundamentally different in Southeastern Europe. Writing was not confined to the major cultural centers whose influence irradiated far into adjoining regions. Inscribed objects of the late Neolithic and Chalcolithic Age are not only found in major centers such as Vinča in Serbia or Karanovo in Bulgaria, but in many other village sites (Map 1). The number of sites with inscribed objects amounts to more than one hundred. This means that the spread of literacy was highly decentralized.

This pattern of a high-grade decentralization matches the conditions of social life in an *oecumene* (see Maisels 1999). The Danube civilization was neither a kingdom like Egypt nor an empire like China and it did not have a political center. Community life in the settlements of Southeastern Europe was organized as a kind of commonwealth in which villages and bigger agglomerations were linked in an economic network of intense trade relations. The profit that was made in the context of these trade relations was of mutual



alignment of signs in inscriptions produces visually random compositions, with neighboring signs having irregular forms (Figure 9).



**Figure 9:** Inscriptions around the base of an anthropomorphic vessel from Kékénydomb, Tisza culture, southeast Hungary, late sixth millennium BCE (after Gimbutas 1991:312).

There are female figurines which are inscribed on one side only, pots which bear signs on part of the brim only, plates with signs in rows of uneven length. Even in contexts where the space on a round vessel is completely used, the irregular shapes of signs in the alignment defy any symmetry and give evidence of their intentional use as signs of writing.

Among the earliest statements by archaeologists about the signs and symbols in Southeastern Europe we find the repeated stereotyping claim that the signs were “owner’s marks” or “potter’s marks” or possibly marks by which certain social groups or clans identified themselves. This tradition of identification of sign use was initiated by Vasić (1931-36) in his monumental work on the Vinča culture. Generations of archaeologists purported Vasić’s views without inspecting the wealth of inscribed objects with any scrutiny.

In a cross-cultural comparison, it can be determined that owner’s or potter’s marks are

positioned at the bottom of pots or vessels, that is, in a space which is not directly visible. Only a certain number of pots in the settlements of the Danube civilization bear signs on the bottom. What is typical of the inscribed objects in general is that signs (single and/or in groups) can be found, indiscriminately, on all parts which are visible (side, rim) and also in the interior of vessels where one would never expect potter’s marks. Judging from the great variety of sign positions on inscribed objects (other than the bottom and predominantly lacking symmetry of alignment), one can conclude that these signs cannot have the value of potter’s marks nor of ornaments (Figure 10).

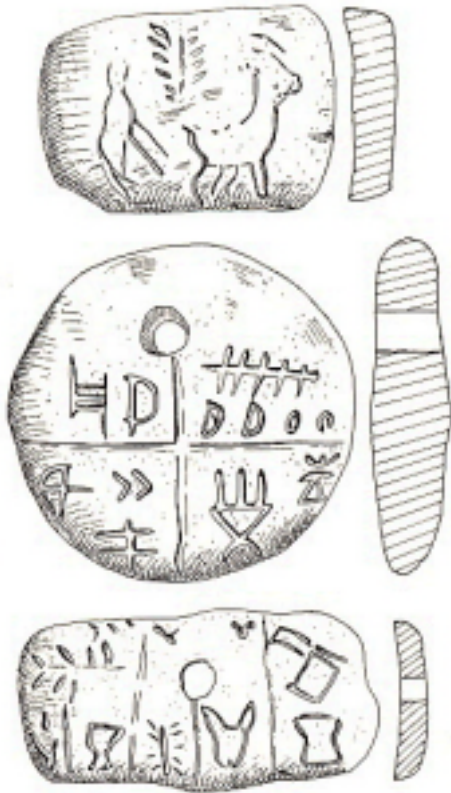


**Figure 10:** Inscribed votive pot from Vinča site near Belgrade (after Gimbutas 1991:312).

Those scholars who have not followed the “potter’s marks tradition” prefer to play down the significance of the signs of writing by categorizing their use as “pre-writing” for unsubstantiated reasons (see Masson 1984; Stanisić 1992; and Hooker 1992 for this position). Almost as adventurous are the approaches to identify the signs on the inscribed tablets from Tărtăria (Figure 11).

As long as the dating was uncertain and they were believed to belong to cultural strata of the third millennium BCE, several scholars concluded that the signs must have been inspired by contemporaneous Sumerian writing. After the high age of the tablets had been established according to the new dendrochronological dating (c. 5300 BCE), and confirmed by a calibrated radiocarbon

analysis in the summer of 2004 (Lazarovici and Merlini 2005), the scholars who had advocated Sumerian influence lost interest in the subject and have remained silent (see Starović 2004: 22 ff. for an outline on the history of research on the tablets from Tărtăria).



**Figure 11:** Inscribed tablets from Tărtăria in Transsylvania, Romania c. 5300 BCE (after Gimbutas 1974).

Others make reference to the tablets without giving any comment on the nature of their signs. An example of this can be found in Whittle's (1996: 101 f.) study on the European Neolithic.

### **The multiple-choice composition of sign inventories**

From the first visual evidence of their symbolic activity onwards—that is, for at least 35,000 years—humans have demonstrated the capacity to produce both figurative pictures (depicting

living creatures and objects in natural style) as well as abstract signs and geometrical motifs. This dual capacity is evident in the Upper Palaeolithic cave paintings of Western Europe where one finds assemblages composed of naturalistic pictures (e.g., of animals) in close association with abstract symbols such as rows of dots and grid signs (Haarmann 2005). Similarly, the inventories of all ancient writing systems in the Old World are composed of two categories of signs, *iconic* and *abstract*:

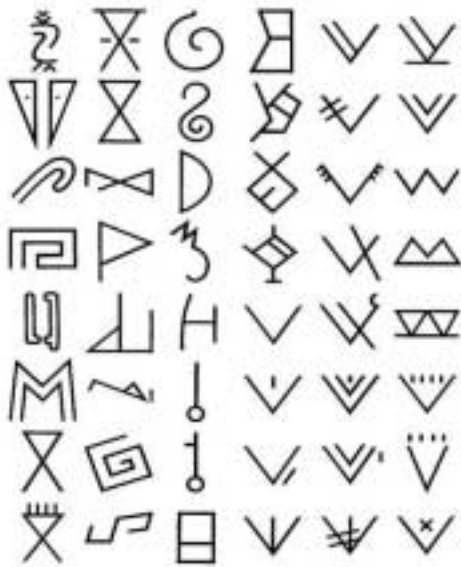
- The iconic signs are *motivated* in the sense that natural objects which are depicted can be recognized and identified (e.g., the depiction of a tree). The degree of stylization determines whether the natural objects represented by the script signs are easy or difficult to recognize.
- The abstract signs are considered *arbitrary* when they lack any recognizable visual association with natural objects. The meaning associated with abstract signs must be learned because it is not immanent in the visual representation (e.g., the meaning of a cross sign).

No ancient writing system operates with iconic signs only, and no writing system operates with abstract symbols only. In all sign inventories, both categories of signs are integrated. Each sign inventory singles itself out by the proportions of iconic and abstract signs which serve to render information. In certain inventories, there is an abundance of iconic signs which outnumber abstract signs. This is the case with Egyptian hieroglyphs (Davies 1987; Kahl 1994) and early Chinese writing of the Shang period (Boltz 1994).

In other inventories, abstract signs (including geometrical motifs) dominate and outnumber



iconic signs. Examples of a dominance of abstractness in the visual appearance of signs are the systems of the Danube script (Winn 1981: 110 ff.), of ancient Sumerian pictography (Green and Nissen 1987: 169 ff.) and of the ancient Indus script (Parpola 1994: 70 ff.). The proportions of the two sign categories are very similar in the Danube script (Figure 12a) and in the Indus script (Figure 12b).



**Figure 12a:** The composition of ancient sign inventories. Selected signs from the Danube script (after Haarmann 1995).



**Figure 12b:** Selected signs from the Indus script (after Parpola 1994).

In the realm of iconic signs of the Danube script, the following subcategories have been distinguished (Haarmann 1995: 32 ff.):

- animals
- human beings and parts of the body
- plants
- tools, utensils or implements with different functions
- structures with different functions
- natural phenomena
- stylized pictures with possible naturalistic origin

Among the abstract motifs, we find basic forms such as the circle, the square, the triangle, different hatches, strokes and dots.

When inspecting the sign inventories of ancient writing systems one recognizes the working of the principle of cultural relativity, not only in the domain of iconic signs, but also in the composition of the abstract inventory. For example, among the abstract signs of the Danube script the V sign and its derivatives are prominent. In a comparative view, it is surprising to learn that the V sign is absent from the inventory of the Indus script. Other items of contrast are the meander and the spiral motifs, both well known from the Danube script but absent from the Indus script.

**The systematic structuring of sign inventories: the external organizational principle**

A principal asset of any writing system, ancient or recent, is its organizational infrastructure. This means that the sign inventory is organized in a systematic way (not randomly assembled), that signs are conventionally used, and that the use of signs is intentional (not accidental). Although these features are separate they usually function together to make up what is called here the *external organizational principle*. It is essential to observe the close

relationship between the systematic character of a given sign inventory and the fact that signs are applied according to accepted conventions (see Harris 1995: 56 ff. for a theoretical discussion).

The systematic structure of the sign inventory of the Danube script alone would not be enough as a parameter to define it as a script. Equally decisive for the definition as a writing system is the fact that sign use followed conventions which were acknowledged in more than a hundred places where literacy flourished.

All ancient writing systems are composed of hundreds of signs. The reason for the high number of signs is the logographic principle of writing which demands individual signs for writing individual concepts or ideas. The concepts which dominate daily communication easily amount to several hundreds and, including special terms in professional fields, the number further increases to several thousands. Ancient Sumerian pictography (of the Uruk III and IV periods) operated with about 770 signs and, from the collection of the oracle bone inscriptions of ancient China, some 1,200 to 1,400 signs are known. The Proto-Elamite script is characterized as “using less than 1000 individual signs and thus in the range of logo- or ideographic writing systems” (Englund 1996: 161 f.).

Even in Egyptian writing where there is a stable set of phonographic signs, the majority of signs were used in ideographic functions. Ancient Egyptian writing applied between 700 and 1,000 hieroglyphic signs. Continuing into the era of the Middle Kingdom (c. 2055–1795 BCE), the second intermediate period (1795–1550 BCE) and the New Kingdom (c. 1550–1069 BCE), the majority of signs had ideographic value, amounting to almost 60 percent of the entire inventory of hieroglyphic signs (Hannig 1995: xxxiv ff.). Determinatives were extensively used as markers of semantic classes.

In the cultural environment of Old European literacy, more than 1,000 individual signs have been identified (Starović 2004: 30). The use of most of them concentrates in the Vinča region. In the regions where literacy flourished during the fifth and fourth millennia BCE, between 700 and 1,000 individual components form part of the inventory of script signs.

The infrastructure of the sign inventory is characterized by a sophisticated order. There is an elementary duality of basic motifs and variations derived from such motifs. When contrasting a basic motif with its variations, three categories of signs can be distinguished (Figure 13).

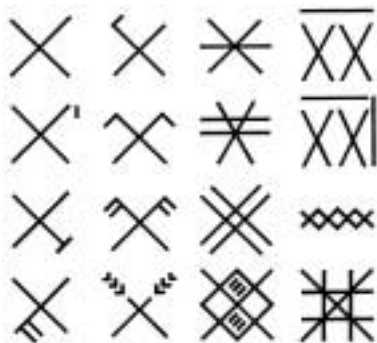
There are basic forms whose overall number is relatively limited. Among these forms are the V sign, the cross with arms of the same length, the square, the circle and others. To the second category of signs belong those derivations of basic forms which are characterized by single auxiliary markers, a stroke, a dot or a curved sign. These simple derivations of basic signs are more numerous than the signs of the first category. The signs of the third category show the principle of multiple variation at work. In these signs, basic forms of the first category are well recognizable, but varified by manifold additions (e.g., the doubling of a simple cross, the variation of a V sign with the help of a stroke and a curved sign).

The principle of variation by “diacritical” markers which is typical of the Danube script finds a striking parallel in another ancient writing system, the ancient Indus script. Here also, basic motifs are varified in similar ways using diacritical techniques. Some of these techniques are even identical in the two sign inventories, such as in the doubling of basic forms and adding additional strokes for varying the cross sign (Figure 14). The appearance of similar and identical techniques of variation in these two scripts gives the impression that the same inventive spirit is present in both systems.

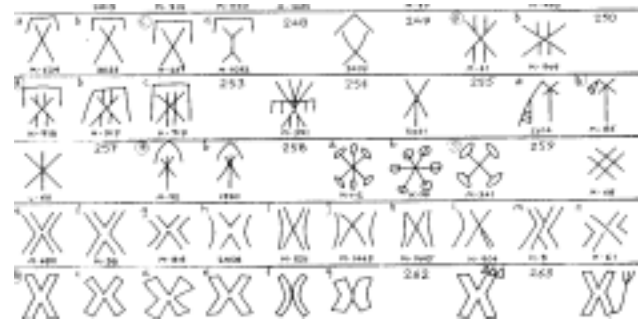


Basic sign	Reference number	Simple variation	Reference number	Complex variation	Reference number
	OE 76		OE 77		OE 85
			OE 78		OE 86
			OE 79		OE 87
			OE 80		OE 88
			OE 81		OE 89
			OE 82		OE 90
			OE 83		OE 91
			OE 84		OE 92
					OE 93
					OE 94
					OE 95

**Figure 13:** The three categories in the composition of the Danube sign inventory (OE = Old European; numeration of signs after Haarmann 1995).



**Figure 14a:** The cross sign and its variants in the Danube script (after Haarmann 1995).



**Figure 14b:** The cross sign and its variants in the Indus script (after Parpola 1994).

Although not as easily recognizable, as in the case of the Danube and the Indus scripts, the systematic variation of basic signs using diacritical markers also becomes apparent when inspecting the sign inventories of the ancient Sumerian pictography and the proto-Elamite script.

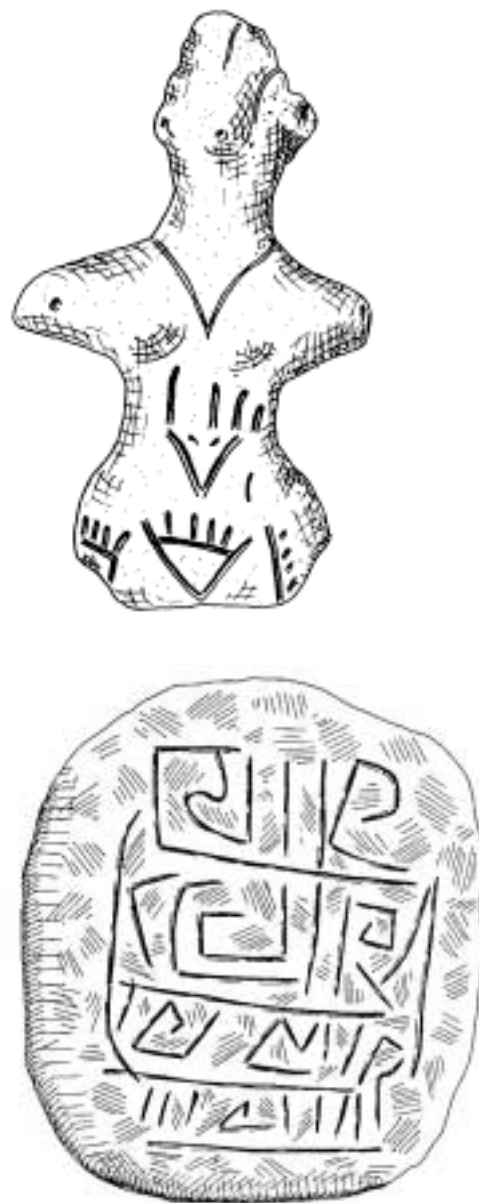
### **The applied principle of nuclear writing: The internal organizational principle**

In general, the texts of the sixth, fifth and fourth millennia BCE in Southeastern Europe are very short. Many inscriptions in the bulk of Danube literacy are comprised of a single sign. Despite the occurrence also of longer texts with alignments of several signs (some with more than twenty signs), short inscriptions prevail (Figure 15).

When an inscription consists of only one sign, this sign must express a single idea or, the most elementary independent unit of language, a whole word. This inductive identification is logical since any single sign with phonetic value (syllabic, segmental or alphabetic) would not express an independent linguistic unit and, thus, would not render a meaningful component of a message. In nuclear writing, only that part of a word (i.e., the stem) is rendered graphically which bears the elementary meaning. In the hypothetical case of writing English words according to this principle, the plural -s in girls or the 3<sup>rd</sup> person -s in a verb form (e.g., “she sees”) would be omitted. Also, an inflectional plural form as in “women” (with the -e- in the plural for the -a- in the singular, “woman”) would not be marked graphically in nuclear writing. Nuclear writing is cumbersome because it requires a great interpretative effort on the part of the reader to specify the precise meaning of a text and to identify the exact contents of messages.

Rendering meaningful elements (= word stems) in writing and, at the same time, omitting or

randomly marking grammatical elements, is illustrative of an archaic system of writing, and this principle is nuclear. For the reasons explained in the foregoing, nuclear writing is by definition logographic.



**Figure 15:** Inscriptions of differing lengths from sites of the Danube civilization. (Top) A figurine with script signs from Jablanica, Vinča complex (after Winn 1981); (Bottom) A shallow vessel from Gradešnica, northwest Bulgaria, Vinča culture, early 5<sup>th</sup> mill. BCE, L. 12.5 cm. (after Gimbutas 1991).

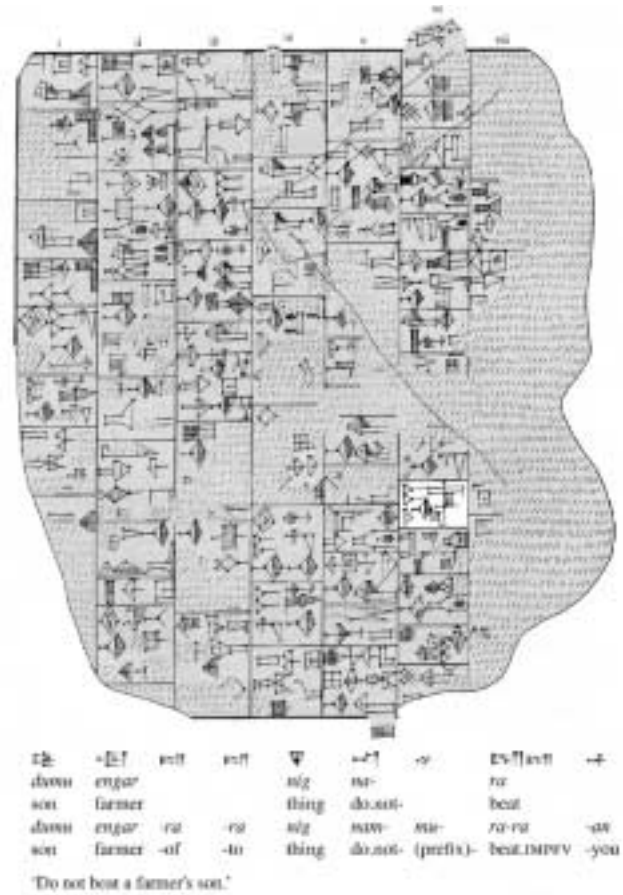
The inductive identification of one-sign inscriptions as representing logographic writing was the key to the decipherment of the ancient Indus script (Parpola 1986: 408). For this script, a crude system of nuclear writing has been proposed where only the meaningful elements (= stems of words) were written. Grammatical elements such as inflective endings and formative elements such as pre- or suffixes were either completely omitted in writing or rendered only occasionally.

We have seen that the Indus script is likely to have been created about the early half of the twenty-sixth century BC . . . At that time writing systems used only a logo-syllabic script, in which each sign stands for a word or morpheme of one or more syllables (Parpola 1994: 85).

The best known script based on this principle of nuclear (logographic) writing is the system of Sumerian pictography, the predecessor of cuneiform writing. Nuclear writing is the principle which governs the sign compositions in the oldest clay tablets from the cultural strata of Uruk III and IV, dating to between 3200 and 3000 BCE (Figure 16).

There is also external evidence for logographic writing in the ancient scripts indicated by the number of used signs. In phonographic systems where signs have the value of syllables or individual sounds, the amount of signs was fairly restricted. The number of regularly used cuneiform signs in late Assyrian writing was less than 200; the system of Elamite cuneiform was comprised of 113 signs; Cretan Linear A made use of some 120 syllabic signs, while Cypriot-Syllabic used 55.

In contrast to phonographic systems, logographic writing operates with hundreds of signs to render a diversity of concepts (see under “The systematic structuring of sign inventories”).



**Figure 16:** The working of the logographic (one-word) principle in ancient Sumerian writing; Archaic text from Abu Salabikh c. 2600 BCE. Decipherable text transliterated (above: words rendered in writing, below: grammatical forms not rendered in writing; after Cooper 1996).

**Abstractness and stylization of sign forms**

In any of the ancient writing systems, a tendency toward the stylization of sign forms can be observed. This tendency toward stylization may be explained by a need to make the effort invested in writing economical. When a scribe has to use a great number of signs, any lack of stylization of depicted objects would make writing a cumbersome activity. Seemingly, abstractness and stylization were ingredients in the formative processes of ancient scripts.

A marked preference for highly abstract sign forms becomes apparent in the late Palaeolithic and Mesolithic Ages, a preference that culminates in the elaboration of abstract signs and their composition in the inventory of the Danube script. What distinguishes the local scripts of early civilizations is the degree of stylization of naturalistic motifs and geometrical forms. Abstractness is among the prominent features of cultural symbolism and signs of writing in Southeastern Europe.

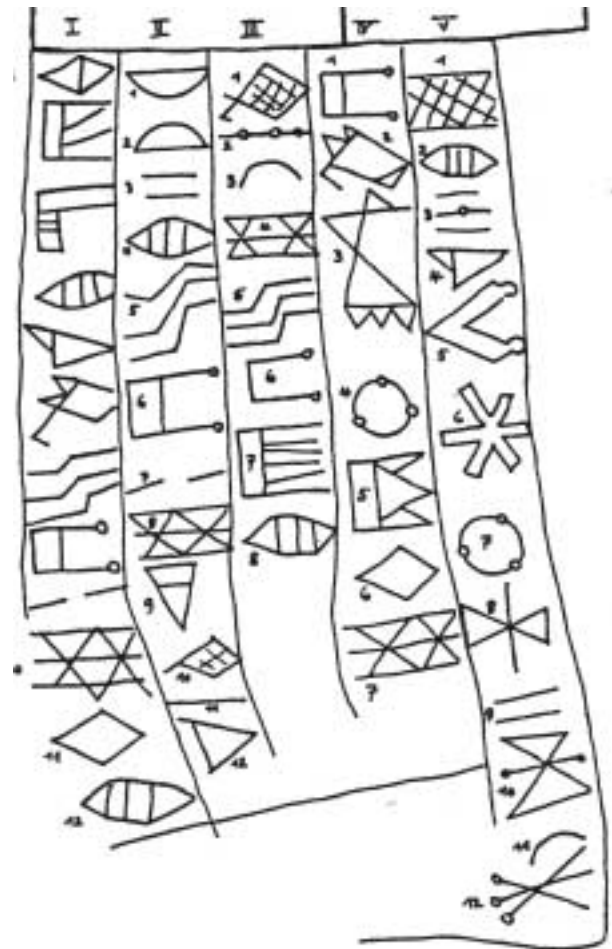
In a comparative view, the abstract sense which is reflected in the Danube sign inventory (see Figure 12a, above) finds a striking parallel in the ancient Indus script (see Figure 12b, above). The derivational techniques by which complex sign forms are produced from basic sign forms illustrate the common trend toward abstractness (see above for aspects of the systematic structuring of sign inventories). A high degree of abstractness is also characteristic of the proto-Elamite script (Figure 17).

**Specific sign use other than writing:  
Numerical notation, calendrical time  
measurement and symbolism of identification**

In all ancient civilizations, literacy does not function as an exclusive system of visible communication but is always associated with other notational systems. Such systems are numerical signs (Pettersson 1996), signs for measures and/or weights, signs of calendrical notation, and symbols of identification. Numerical sign systems were highly differentiated in the Sumerian city states (Damerow and Englund 1987: 117 ff.) and in Elam (Englund 1996: 162 ff.). Although non-economic functions of writing prevail in the Danube civilization and in the ancient Indus civilization there is evidence for numerical notation there also, albeit rudimentary.

So far, the logographic (or ideographic) value of signs of the Danube script has remained, for the most part, putative and, thus, the identification

of numerical signs is tricky. There are certain categories of signs in the Danube inventory which may be assumed to function as numerals, namely strokes and dots (Figure 18). These distinguish themselves from the diacritical markers which produce derivations from basic signs in that they appear independently on inscribed objects.



**Figure 17:** A text in the Proto-Elamite script (after Haarmann 1992).

Identifying the single stroke sign and its repetitive groupings as numerical notations seems pervasive. In a comparative perspective, however, such identification turns out to be highly arbitrary. For instance, in the numerical notation of Sumerian and Elamite one finds

dots, circles and other sign forms (e.g., conical shapes), but the stroke is absent from the two systems (Figure 19).

Basic sign	Reference number	Simple variation	Reference number	Complex variation	Reference number
	OE 144				
	OE 145		OE 146		OE 147
				=	OE 148
	OE 149			/	OE 180
	OE 150			//	OE 181
	OE 151			///	OE 182
	OE 152			////	OE 183
				/////	OE 184

**Figure 18:** Signs that probably functioned in a notational system, Danube civilization (after Haarmann 1995).



**Figure 19:** A Proto-Elamite accounting tablet, c. 2900 BCE (after Harper et al. 1992).

There are scarce instances of the stroke in ancient Sumerian texts, and its connection to numerical notation is “uncertain” (Green and Nissen 1987: 345). In the light of this absence in the compared systems, the identification of the stroke sign and its groupings as numerical signs in the Danube inventory seems hazardous. Instead, there is a greater probability speaking in favor of the value of the dot sign and its groupings as numerical notation.



**Figure 20:** Neolithic stamp seals (pintaderas) from Southeastern Europe (after Vajsov 1993).

In the ancient civilizations, a specific system of signs and symbols may have served the purpose of identification, of social status and/or political authority. These were seals of differing fabric and in various forms (Collon 1997). In Southeastern Europe, the archaeological record is rich in stamp seals (so-called *pintaderas*) the earliest finds, of which, date to the seventh millennium BCE. The occurrence of such seals is frequent in the Early Neolithic but, later, their use is less common (Makkay 1984; Vajsov 1993). Despite a decrease in their popularity, *pintaderas* still appear in the cultural horizons of



Vinča and Karanovo and, thus, form part of the synchronicity of systems of visible communication in the Danube civilization. In the symbolism of the pintaderas, one can easily detect parallels with the sign inventory of the Danube script (Figure 20).

### Aesthetic functions of sign use

The difference in the priorities set for writing, on the one hand, and decoration, on the other, has been emphasized in the foregoing (see “the intentionality of sign use” above). And yet, a crucial question has not yet been addressed which nevertheless relates to this issue. Was there an aesthetic sense at work which shows in the positioning of signs and sign groups on the inscribed objects of the Danube area? As a general observation one can state that, whatever aesthetic impression the sign use may evoke in the modern observer, this aspect of writing is marginal with respect to groupings of two or more signs in their asymmetrical alignment in the inscriptions. Those inscriptions which consist of only a single sign deviate from this general observation (Figure 21).

It is noteworthy that single signs are not infrequently positioned in prominent spots on the objects on which they are found. This is true, for instance, for the meander or V sign on the belly of a female figurine or of a multiple cross sign on a stamp seal. In such cases, the weight of the symbolic meaning of the sign in focus was undoubtedly increased by its visual centrality.

The one-sign inscriptions of Danube literacy may be seen as a bridging link between the practical purposes of writing and the aesthetic requirements of ornamentation. It is not far-fetched to identify their aesthetic implications as a rudimentary form of calligraphy. This holds true if one accepts two major parameters of calligraphy. One is the architecture of the text itself (text calligraphy), and the other is what is

widely known as the aesthetic variation of signs (sign calligraphy).

Sign variation as a source of calligraphy is known from many cultural environments, such as Chinese, Arabic, and Buddhist calligraphy (Schimmel 1984; Stevens 1996; Haarmann 1998: 84 ff.). Calligraphy in the European context does not feature in the record of writing before the Late Bronze Age. The earliest specimens of calligraphic inscriptions stem from Mycenaean vase painting of the thirteenth century BCE (see a specimen in Haarmann 2000: 367). In a chronological retrospective, the calligraphy of signs is a younger phenomenon when compared to the other form of calligraphy, the architecture of texts.



**Figure 21:** Specimen of a one-sign inscription on an amphora fragment from Potporanj-Kremenjak, Serbia, Early Vinča culture (after Starović 2004: 44).

Text calligraphy is generally not acknowledged to be a form of calligraphy although the aesthetic standards which govern the production of particular texts in certain cultural environments deserve to be identified as “calligraphy.” Apart from the putative cases of



text calligraphy in the sphere of Danube literacy, the oldest evidence for aesthetic text architecture comes from ancient Egypt of the third and second millennia BCE. A fine example is the decorative hieroglyphic band on the sarcophagus of Tutankhamen, 14th century BCE (Haarmann 1992: 222). The tradition of text calligraphy in Egypt continues into the first millennium BCE (see specimens of bands of hieroglyphs on the surface of wooden sarcophagi from the 8th and 7th centuries in Davies 2001, plates 53-56).

### **Social functions of literacy in the Danube civilization**

The social functions of the Danube script, as far as they can be reconstructed from the archaeological record, point to a predominantly religious context. Religious functions dominate the early phase of literacy in the Danube civilization. In the course of time, the use of signs extended to also encompass the sphere of everyday life (Starović 2004: 28). Finds of objects for ordinary use which are inscribed become more and more frequent from the late fifth millennium BCE onwards and into the fourth millennium BCE. In this particular non-economic gravitation of sign use, the Danube script distinguishes itself from many of the other traditions of early writing.

An indicator of economic functions of writing par excellence are clay tablets with listings of trade goods as they are well known from the archaeological record of Mesopotamia. Clay tablets with listings of commodities appear in Europe as late as the second millennium BCE, in the archives of Minoan Crete and mainland Mycenaean cities (Godart 1992: 86 ff.). It is important to note that such inventories are absent from the tradition of literacy in Southeastern Europe.

Indicators of religious functions of writing abound in the cultural centers of the Danube

civilization. The preferred objects bearing inscriptions are cult vessels (i.e., pots and plates), altars, female figurines, cult tables and plaques found in public sanctuaries as well as in private households. This is also true for inscribed clay tablets such as those from Tărtăria (Figure 11) or the one from Gradešnica (Figure 15b). These tablets also belong to a religious and non-economic context.

Religious functions may be categorized as manifestations of two gravitations. On the one hand, emphasis lies on the role of writing in the context of cult practices and worship. This sphere is well documented by the abundance of cult vessels bearing inscriptions (Lazarovici 2004). On the other hand, and in addition to more formal religious contexts, the use of writing also extends into the realm of popular religiosity associated with everyday life.

Inscribed figurines (Figure 22) illustrate that the two spheres of religious functions were not separated from one another but were interwoven. Figurines appear to have functioned in public worship as well as in private rituals within domestic spaces. This multiple role of figurines becomes evident when taking into consideration that figurines are found in sanctuaries as well as in households (i.e., such as near hearths or baking ovens).

There is another class of inscribed objects with primarily practical functions which are nonetheless linked with the religious sphere, and these are spindle-whorls (Figure 23). Thousands of spindle-whorls, many of them inscribed, have been unearthed in the cultural provinces of the Danube civilization extending as far as the eastern Tripyllya culture where the use of writing on spindle-whorls persisted well into the third millennium BCE (Videjko 2003: 114 ff.). The latest specimens of inscribed whorls date to c. 2600 BCE (in the Dniepr region).

Weaving was among the technologies that are attested for Southeastern Europe already in the Early Neolithic Age (seventh millennium BCE). Evidence for the use of the vertical loom comes from the loom-weights that have been found in the southern and western parts of Southeastern Europe. Barber (1991: 98) sees “connections southward into the Aegean as well as northwestward into Hungary.” During the sixth millennium BCE, weaving spread throughout the whole area of the Danube civilization and into adjacent regions.

Weaving is a handicraft and its primary purpose is practical. In antiquity, the craft of weaving was considered a divine gift (Scheid and Svenbro 1996). This is evidenced by the mythic traditions in Europe and Asia. In ancient Greek mythology, Athena is credited to have taught the women on earth this craft and, in the Sumerian canon of myths, Uttu is praised as the patron of weaving.

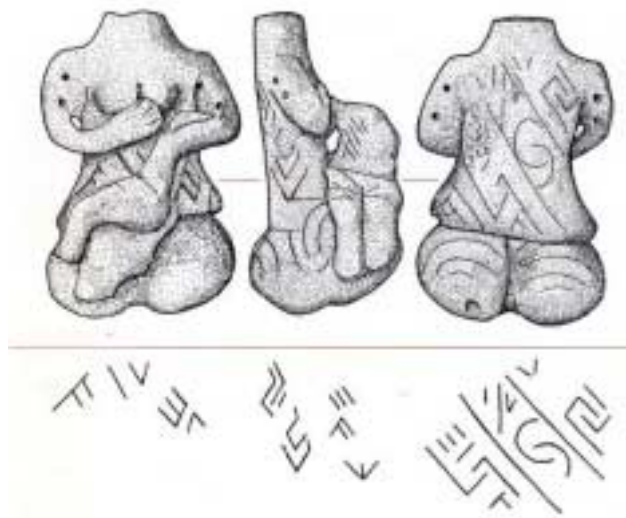
The association of a female divinity with weaving in Greek mythology has pre-Greek roots which may well extend as far back in prehistory as the Danube civilization. Gimbutas (1974: 86) points at the high antiquity of ideas about spinning the thread of life. She suggests that the religious awe that still surrounded spinning and weaving in classical Greek times is likely to have originated when these crafts were still in their infancy.

The intention to inscribe spindle-whorls may have served two purposes which both relate to the religious worldview of the ancient society. According to Shan Winn these purposes are:

- (1) magical marking to ensure successful production of yarn or of the final product fashioned from wool, or perhaps for good luck and welfare to the spinner/weaver; or (2) more formalized ritualistic marking to express devotion, requests, etc. (Winn 1981: 245).

In Winn’s assessment, a similar duality of religious functions like the one described in the foregoing can be recognized. Those objects from the archaeological record of sites in Southeastern Europe which are inscribed and cannot be spontaneously associated with religious functions are few in number. The extent to which numerical signs might have been used to mark weights is not yet known and requires detailed investigation (Figure 24).

In the Bulgarian museums of Karanovo and Stara Zagora, a few rare pots are preserved which are “decorated” with exactly 365 square



**Figure 22:** Inscribed figurine from the Danube civilization: “Madonna from Rast.” western Romania, Vinča culture, early 5<sup>th</sup> millennium BCE (after Gimbutas 1991:310).



**Figure 23:** Inscribed spindle-whorl from Kosovo, Vinča culture (after Gimbutas 1991:313).

motifs which resemble the designs on “memory sticks” used for time measurement. The markings on such “memory sticks” may have served as a kind of calendar, as reminders of cyclical phenomena in nature (e.g., moon phases) or of seasonal events (e.g., covering the time span from sowing to harvest). Archaic versions of “memory sticks” are already known from the Upper Palaeolithic of Western Europe (see Marshack 1972 and 1990: 481 ff.). In that earlier cultural context, however, signs and symbols appear as a notational system without the synchronicity of writing as found in the Neolithic of Southeastern Europe.



**Figure 24:** Inscribed loom weight from Turdas, Romania (courtesy of National History Museum of Transsylvania (photo Jacob Appelbaum).

Recently, a similar system of geometrical signs on a vessel from the Vučedol culture has been identified as an archaic form of calendar (Durman 2001; Figure 28). The Vučedol culture in eastern Croatia that flourished between c. 2900 and 2400 BCE was a late offshoot of the Danube civilization, a transitional culture characterized by the convergence of Old European traditions and new patterns of Indo-European fabric (see Gimbutas 1991: 372ff.).

In a comparative view of the social role of ancient writing systems, it is evident that the

non-economic function of Old European writing is not isolated in the literary traditions of the Old World. In the cultural embedding of early writing in ancient China (i.e., the use of writing for divination) conditions of sign usage resemble those in the Danube civilization.

Modern research has produced evidence that divination in ancient China has a long tradition extending back to the Early Neolithic Age. Tortoise shells, the shoulder bones of deer, and other bones were used for magical ritual to explore the will of the ancestors and divine beings. The bones were cast into the fire, and an expert in divination would interpret the cracks that the heat produced.

The power of the written word came from its association with knowledge—knowledge from the ancestors, with whom the living communicated through writing; which is to say, knowledge from the past, whose wisdom was revealed through its medium (Chang 1983: 88).

In graves at Jiahu (Henan Province) in central China, tortoise shells were found which bear signs (Li et al. 2003). Sign use obviously was conventional and intended to reinforce the communication involved in the divination process. Altogether eleven signs have been identified, some of which resemble Chinese characters of later periods. However, the number of symbols so far attested is far too small to suggest an early form of writing. The graves at Jiahu are dated to the seventh millennium BCE.

Organized writing for the purpose of divination, operating with hundreds of signs, is known from the earliest inscriptions in Chinese characters, the oracle bone inscriptions of the late Shang dynasty, c. 1200 BCE (Keightley 1989). For about five hundred years, writing in ancient China was delimited to the sole purpose of divination and its use was restricted to the emperor and his family. As late as the eighth century BCE (era of the Chou dynasty), the social functions of writing extended also to the

realm of administration and economy (Liu 1998: 33 ff.).

## 6. The Dissemination and Proliferation of Ancient Scripts

The effectiveness of a script lies in its technical capacity to store information for reuse with visible markers. Its success as a cultural institution, though, is associated with its potential to spread beyond the boundaries of the speech community for which it was created and to proliferate in the form of writing systems which are derived from it (see Haarmann 1992: 361 ff. for the diversity of secondary, that is, derived writing systems).

The properties which are indicators of the effectiveness of ancient writing technology have been inspected in sections 3-5. Here, some general remarks shall be added concerning the spread of ancient scripts as a cultural “commodity” throughout the Old World. This is true for most of the ancient writing systems, albeit with two significant exceptions: both the ancient Indus script and the Proto-Elamite script remained isolated.

The ancient Indus script declined around 1800 BCE and disappeared from the historical record. There are distant repercussions of the Indus civilization in South Asia, and some motifs of the religious symbolism even reached the cultures of the Himalayas (see Chakravarti 1992 for influences on traditions in Bhutan). As magical symbols, some core signs of the ancient Indus script have survived among the Dravidian communities in southern India.

One medium through which traditional motifs have passed from generation to generation all over India is the folk custom of drawing auspicious designs in courtyards and on house walls with dry or wet flour, possibly mixed with colour . . . In North India this is done on festive occasions only, but in South India every day (Parpola 1994: 55).

And yet, as a writing system the ancient Indus script did not survive. Nor did it produce any secondary systems (derivations).

The most successful of the ancient scripts in terms of their potential to produce derivations is the system of Chinese characters. It has produced numerous adaptations for writing languages other than Chinese, namely Korean, Japanese, Vietnamese and various minority languages in Southern China (e.g., Yi). The Chinese script is the only one among the ancient writing systems that has flourished throughout the ages up to the present. Vietnamese is the only language in the historical sphere of Chinese literacy that gave up its writing system which was based on Chinese characters (called the Nom system) in the first half of the twentieth century (DeFrancis 1977). Modern Vietnamese is now written in the Latin alphabet with numerous diacritical signs.

The cuneiform script, the revolution in writing technology which was devised by the Sumerians around 2700 BCE to replace the older system of pictography, swiftly spread to other cultural areas. The first people to adopt Sumerian cuneiform for writing their Semitic language were the founders of the kingdom of Ebla. The earliest Eblaite texts written in cuneiform date from c. 2600 BCE (Archi 1999). Soon, Akkadian followed suit and joined the world of literacy created by the Sumerians. The amount of literature in Akkadian (including the younger dialectal varieties of Assyrian and Babylonian) exceeds the production in all other languages that were ever written in the cuneiform script. Among them were Elamite, Hurrian, Urartian, Hittite, Luvian, Ugaritic, Persian and others (Gragg 1996).

The Egyptian script (in its three varieties: hieroglyphic, hieratic, demotic) was less successful and spread to only one cultural area outside Egypt, to the kingdom of Meroe. Meroitic was written in a script that is derived

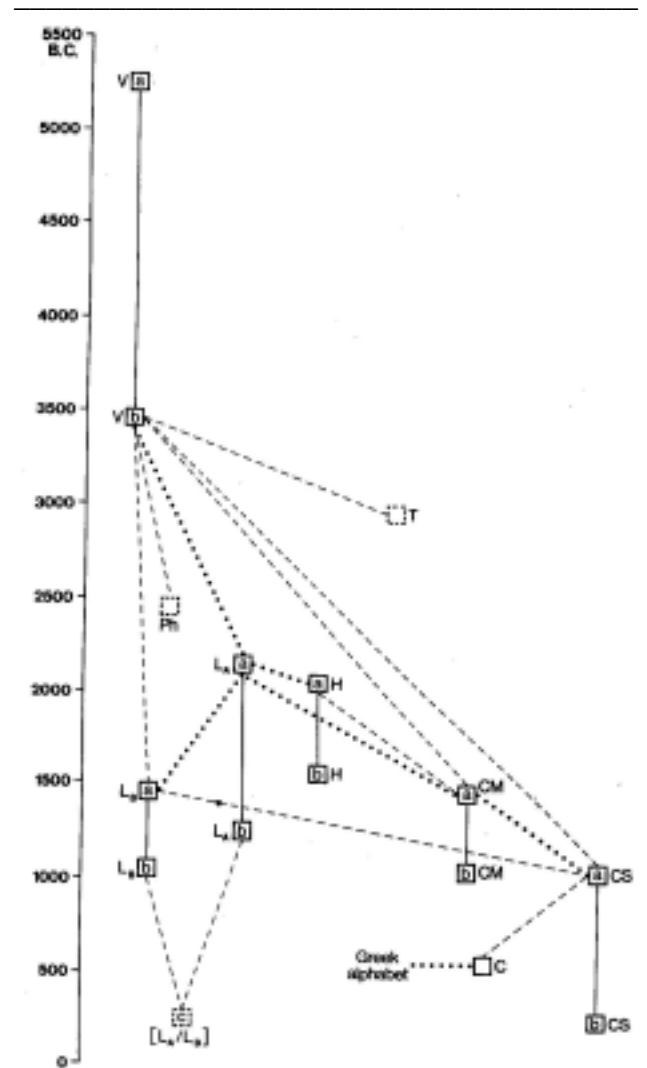
from the Egyptian. Texts are recorded in two varieties, one adapted from Egyptian hieroglyphics, the other from the demotic system. Meroitic literacy started in the second century BCE and continued into the fourth century CE (Millet 1996).

The Danube script was successful as well although its continuity into later periods is still a matter of dispute. The ancient tradition of literacy on the continent ends about 3200 BCE (Owens 1999: 117). There are traces of a decaying writing system and of a notational system in the early third millennium BCE on the Greek mainland (Haarmann 2002b: 17 ff.). Literacy shifts to the Aegean. The earliest evidence for Linear A in Minoan Crete dates to around 2500 BCE. When inspecting the sign inventory of Linear A one is impressed by the multitude of resemblances with the older Danube script. Despite claims with respect to Linear A that “its origins remain mysterious” (Dickinson 1994: 193), it can be demonstrated that about half of the signs of Linear A, which operated with some 120 signs, show close affinity with the Old European sign inventory (Haarmann 1995: 83 ff.).

The similarities linking the older Danube script with Cretan Linear A are embedded in an extensive network of cultural features that point to a historical relationship between the Danube civilization and Minoan civilization in ancient Crete (Haarmann 2002b: 31 ff.). The Balkanic-Aegean convergences which abound in the domain of religious symbolism, in the repertory of decorative motifs and in the sphere of writing and literacy, are manifestations of a cultural drift from the continent into the Aegean archipelago that effected the diffusion of ideas and the re-establishment of literacy.

While Linear A is a secondary system derived from the Danube script, other writing systems were inspired by the Minoan tradition itself. This is true for Mycenaean Linear B, for Cypro-

Minoan, for Levanto-Minoan and for Cypriot-Syllabic (Figure 25).



- 1) A full line marks continuity in time.
- 2) An interrupted line marks fragmentary continuity.
- 3) A dotted line marks transformation of an older pattern.
- 4) The letter [a] marks the initial stage; [b] the final stage in the development of a writing system.
- 5) The letter [c] marks a fragmentary survival of linear writing at a later period.
- 6) Capital letters stand for the following abbreviations:  
 C = Carian; CM = Cypro-Minoan; CS = Cypriot-Syllabic; H = (Cretan) Hieroglyphics; LA = Linear A; LB = Linear B; Ph = Inventory of linear signs from Phylakopi (Melos); T = Inventory of linear signs from Troy; V = Vinča sign system.

**Figure 25:** Historical relationships between the Danube script and ancient Aegean writing systems (after Haarmann 1995).

The Old European heritage of linear signs is also documented in the repertory of incised signs on pottery from Troy I, after 3100 BCE (Haarmann 2002b: 21) and from the first city of Phylakopi (Melos) in the Cyclades (dated to c. 2300 BCE).

The ancient Aegean tradition of writing declined with the advent of the alphabet. And yet, it has left its traces in the Greek alphabet. The additional letters *phi*, *khi* and *psi* are not of Phoenician origin; their descent has been identified as an Aegean substratum influence (Haarmann 1995: 136 ff.).

## 7. How to Make Progress with the Decipherment of the Danube Script?

As outlined earlier (see under 2), a positive identification of sign use in the Danube civilization as a script is possible even without a successful decipherment. This analysis of the sign inventory and its composition, the artifacts and their inscriptions and the resemblances with other ancient writing systems has, hopefully, provided insights into the early experiment with writing in Southeastern Europe.

At the moment, it is doubtful whether significant progress with the decipherment can be made since bilingual and digraphic texts do not exist. In the absence of a “Rosetta Stone”—the item that made possible the breakthrough in the decipherment of Egyptian hieroglyphs in the 1820s (Champollion 1825)—the prospects to ever crack the code of the Danube script seem minimal.

There are certain conditions of the cultural embedding of the Danube script and its literacy which, seemingly, pose unsurmountable problems to a successful decipherment:

- The scarcity of longer texts which would allow for a computational approach to

identify frequencies and group patterns of signs in inscriptions;

- The appearance of multifunctional signs which may represent a script sign but are also integral components of religious symbolism (e.g., the cross sign, the V sign, the lozenge and the meander).

Although it is highly improbable that we might ever be able to read entire inscriptions in the Danube script we may well know more about its social functions and about formulaic patterns of its sign use. Progress may also be expected from an analysis of signs and their groupings according to their appearance on certain objects, such as cult vessels, spindle-whorls, sculptures and ceramics, thus facilitating the distinction between writing and other notational systems (e.g., numeration, calendrical information, weights and measures, and heraldic emblems as markers of social groups). All these systems interacted in a sophisticated network of communication in the ancient Danube civilization.

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